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THE DEFENSE BUDGET OF THE PEOPLE'S REPUBLIC OF CHINA

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THE DEFENSE BUDGET OF THE PEOPLE'S REPUBLIC OF CHINA

This report is adapted from a paper, entitled *Off the Books: Analyzing and Understanding Chinese Defense Spending*, which was presented by the authors to the Fifth Staunton Hill Conference on the People's Liberation Army sponsored by the American Enterprise Institute and held in June 1994. The paper was published as part of a volume of conference proceedings by the American Enterprise Institute, and will appear as an article in the Winter 1994/95 volume of *Washington Journal of Modern China*.

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ABOUT THE DEFENSE BUDGET PROJECT

The Defense Budget Project is an independent research organization committed to fostering a coherent U.S. national security policy, which reflects a realistic assessment of available fiscal resources and national security needs over the long term.

This report is part of DBP's ongoing research examining current Asian security issues. As part of this research, DBP has published a background brief on *Japan's Defense Budget*, and is preparing a background brief on *The Defense Budget of the Republic of Korea (forthcoming)*. The paper on which this report is based was funded by the American Enterprise Institute.

DBP also is undertaking a major study of indigenous arms production in the Asia-Pacific region and the role that international technology transfers play in this development. Some initial findings were presented in DBP's report, *The Globalization of Arms Production: Defense Markets in Transition* (December 1993). Under a grant from the Japan-U.S. Friendship Commission, DBP is currently examining the potential impact of Japanese "dual-use" technology transfers to East Asian on arms production in China, Taiwan and South Korea.

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As Asia looms larger in Western, and particularly U.S., security calculations, interest in the People's Republic of China (PRC) as a potential security concern has grown. As China attempts to modernize its forces, is it becoming a "threat" to Western security in the region, and, if so, does it constitute a direct military threat? How successful have the Chinese been in upgrading their armed forces? How capable is China of projecting its forces beyond its borders? In attempting to answer these questions, it would be useful to know where current Chinese strategic and military priorities lay, and whether the PRC is investing enough resources in these priorities to constitute a serious security concern for the West.

Since defense budgets are often a critical indicator of national defense priorities and policies, Western interest in Chinese defense spending has also grown considerably. The size of its defense budget, the rate of growth (or decline) in its military expenditures, and what it spends its defense dollars on can reveal much about a country's national security intentions and military plans. Defense budgets are usually an indicator of a country's military modernization priorities, and what future military capabilities it might possess. They can also serve as a gauge of a country's defense commitment and resolve, or its potential to threaten others.

A major question is, therefore, what are the Chinese spending on their defense? Unfortunately, the extent and nature of Chinese defense expenditures are largely unknown. The Chinese release an annual "top-line" budget figure for national defense, but since almost no one in the West believes the official statistics on military expenditures coming out of Beijing, Western analysts have been left with devising their own approaches to estimating and assessing actual Chinese defense spending. However, nearly all of these efforts — and certainly all of those done in the unclassified world — are based on insufficient data, educated guesswork and unsatisfactory methodologies.

This backgrounder reviews and analyzes some of the reasons for the wide disparity among various estimates of Chinese defense spending. It begins by pointing out that the considerable amount of Chinese defense spending not reflected in the official military budget. Next, the paper discusses recent efforts by Western analysts to arrive at truer estimates of Chinese defense budgets. Third, it presents two alternate approaches for roughly calculating Chinese military expenditures and tries to express these expenditures in terms of likely Western purchasing power. Finally, this paper makes some broad assessments about the directions and priorities in Chinese defense spending, which, in turn, should provide an indication of where Chinese military expenditures might be cause for Western concern and where they might not.

OFFICIAL CHINESE DEFENSE SPENDING

The official figures for Chinese defense spending are presented in the annual State Budget. For 1994, the Chinese government has appropriated 52.04 billion yuan for defense,

or approximately \$6 billion at the current exchange rate of 8.7 yuan to one U.S. dollar.¹ Here, one runs into the first difficulty in analyzing Chinese defense spending, since the PRC provides only a "top-line" number for defense spending, and the official military budget is not broken down into personnel, procurement or operations and maintenance (O&M) costs.

Nevertheless, even official top-line figures can be revealing. Official expenditures for the People's Liberation Army (PLA)² are up about 22 percent over 1993. Moreover, the 1994 defense budget marks the sixth straight year of nominal double-digit increases in Chinese military spending (see Table 1). Since the early 1980s, official PLA spending has nearly trebled. For many, this trend alone is sufficient to raise concerns that China may be on the verge of an expansionist phase threatening East Asia and challenging U.S. interests in the region.³

Table I
OFFICIAL CHINESE DEFENSE SPENDING
1986-94

	Yuan (billions)	USD (billions)	% GNP
1986	20.1	5.83	2.6
1987	21	5.64	2.5
1988	21.8	5.78	1.9
1989	25.2	6.69	1.9
1990	29	6.06	2.0
1991	32.5	6.21	2.0
1992	37	6.76	2.0
1993	42.5	7.45	1.5
1994	52	6.10	1.5

¹ Chris Yeung and Willy Wo-Lap Lam, "Defense Wins Huge Budget Rise," *South China Morning Post*, March 12, 1994.

² The People's Liberation Army is the official name of the entire Chinese armed forces, and it incorporates all ground, air and sea forces.

³ See, for example, William C. Triplett II, "Inside China's Scary New Military-Industrial Complex," *Washington Post*, April 8, 1994; and Robert Sutter and Shirley Kan, *China As a Security Concern in Asia: Perceptions, Assessment, and U.S. Options* (Washington, DC: Congressional Research Service, January 5, 1994), esp. pp. 7-9.

Chinese officials are quick to point out that these figures, taken by themselves, are extremely misleading. For one thing, inflation — which reached over 25 percent in 1988 and which is currently thought to be running at about 40 to 50 percent in today's superheated economy⁴ — has significantly undermined any increases in defense spending. China's current ambassador to the United States has noted that while Chinese defense spending rose 116 percent between 1980 and 1993, prices in China increased 130 percent.⁵ As such, official figures suggest that Chinese military expenditures, as measured in real (i.e., inflation-adjusted) terms, have actually decreased slightly during the past decade (see Figure 1).

Furthermore, official Chinese estimates show that defense spending, as a percentage of both China's gross national product (GNP) and of central government expenditures, has dropped progressively over the past ten to 15 years. In 1981, for example, China's military budget (again, using official figures) amounted to about 3.5 percent of GNP; by 1985, however, this had dropped to around 2.2 percent of GNP, and in 1993 and 1994 stood at around 1.5 percent.⁶ As a share of central government spending, official military spending has declined from about 16 percent in 1980 to 9.6 percent in 1994.⁷

Finally, as measured in U.S. dollars *and without even taking inflation into account*, official Chinese defense spending has failed to show any significant growth. This is due to a series of devaluations of the yuan, which has reduced its official value from 3.4 to the dollar in 1986 to 8.7 in 1994. Using contemporary official exchange rates, therefore, Chinese military expenditures have hovered at around \$6 billion for nearly the last ten years. In fact, as measured in U.S. dollars, China's official 1994 defense budget is lower than 1993 spending (see Table 1). Since the PLA increasingly relies upon the importation of weapon systems or military technology (see below) that must often be paid for in hard currency, this devaluation of the yuan puts additional pressure on the Chinese defense budget.⁸

⁴ The official rate of inflation in China is about 20 percent — and about 26 percent in the cities — but informed sources believe that the real rate is probably twice as great. See "China Prepares for a Summer of Discontent," *Economist*, April 9, 1994.

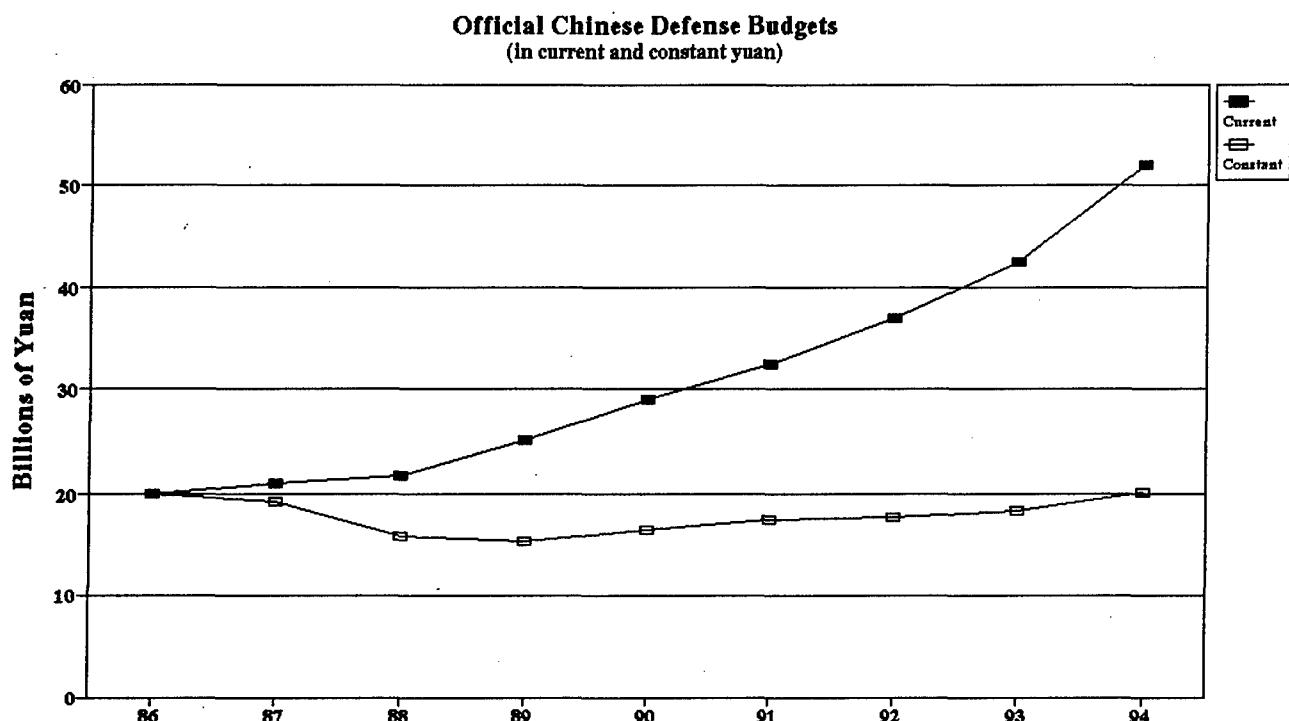
⁵ Li Daoyu, "Foreign Policy and Arms Control: The View From China," *Arms Control Today*, December 1993, p. 10.

⁶ Li Daoyu, "Foreign Policy and Arms Control," p. 10; *Beijing Review*, September 10-16, 1990, p. 27; "Balancing the Books," *Jane's Defence Weekly*, February 19, 1994.

⁷ *Beijing Review*, September 10-16, 1990, p. 27; Yeung and Lam, "Defense Wins Huge Budget Rise."

⁸ At the same time, it should be noted that some of the Soviet/Russian weaponry purchased by China in recent years (see footnote 20) was purchased through barter arrangements.

Figure 1



The Chinese, using official figures, argue that PLA defense expenditures are modest, reasonable and quite in keeping with the supposedly "defensive" nature of their armed forces. As officially reported, Chinese defense expenditures are about one-fortieth that of the U.S. military budget and about one-fifth that of Japan's; the PRC spends only about six dollars per capita on its military spending, compared to over \$1,000 in the United States.⁹ And any increases in defense spending, it has usually been argued, are being used mainly to raise the wages and living standards of the PLA's approximately 3 million troops.¹⁰

⁹ Li Daoyu, "Foreign Policy and Arms Control," p. 10.

¹⁰ James Harris, et. al., "Interpreting Trends in Chinese Defense Spending," from *China's Economic Dilemmas in the 1990s: The Problems of Reforms, Modernization, and Interdependence*, Volume 2, Study Papers Submitted to the Joint Economic Committee of the Congress of the United States (Washington, DC: Government Printing Office, 1991), pp. 676, 680-681; Stockholm International Peace Research Institute, *SIPRI Yearbook 1992* (New York: Oxford University Press, 1992), pp. 246-247; Uli Schmetz, "China Approves More Benefits for its Army," *Chicago Tribune*, May 10, 1994.

HIDDEN CHINESE DEFENSE SPENDING AND REVENUES

The difficulty with relying so heavily upon official Chinese defense budgets is that almost no one outside the PRC trusts them to be an accurate representation of PLA expenditures. Most Western observers believe that official statistics on Chinese national defense spending are missing several important categories of military expenditure and thus, seriously undervalue real PLA spending.

The official Chinese defense budget is thought to cover only the costs of personnel (pay and some fringe benefits for PLA troops) and O&M costs, which generally include basic training, readiness, and logistical upkeep.¹¹ Areas believed to be wholly or partially unaccounted for in official Chinese defense budgets include:

- **Military-Related Research and Development:** Military research and development (R&D) is generally believed to be funded in other parts of the PRC's State Budget. For example, funding for the Commission on Science, Technology, and Industry for National Defense (COSTIND), the State Science and Technology Commission and for other defense-related ministries (e.g., the Ministry of Energy Resources, which controls China's nuclear energy programs) could be utilized to underwrite military-related R&D.¹² It is also almost certain that Chinese defense enterprises privately fund some of their own R&D.¹³ In addition, the costs of sponsoring the up to 3,000 Russian technicians, scientists and engineers who have flowed into China in the past few years and who are currently helping to modernize the PRC's military-industrial complex, are probably being borne by non-PLA budgetary expenditures; it has been reported that these advisers may be paid as much as \$2,000 a month, plus housing and living expenses.¹⁴ Finally, since a good deal of advanced commercial technology is potentially dual-use in character (e.g., aerospace or electronics), it is highly probable

¹¹ Stockholm International Peace Research Institute, *SIPRI Yearbook 1993* (New York: Oxford University Press, 1993), pp. 387-388. David Shambaugh argues that the official PLA budget also includes ordnance procurement (presumably for training) and partial R&D. David Shambaugh, *Wealth in Search of Power: The Chinese Military Budget and Revenue Base*, paper presented to the conference on "Chinese Economic Reform and Defense Policy," Hong Kong, July 8-10, 1994, p. 25.

¹² James Lilly and Chong-Pin Lin, "Testimony Before the Congressional Foreign Affairs Committee," manuscript, May 1993, p. 3; Harris, "Interpreting Trends in Chinese Defense Spending," p. 678; *SIPRI Yearbook 1992*, p. 248.

¹³ Shambaugh, *Wealth in Search of Power*, p. 28.

¹⁴ John J. Fialka, "U.S. Fears China's Success in Skimming Cream of Weapons Experts from Russia," *Wall Street Journal*, October 14, 1993.

that collaborative defense conversion activities with industrialized nations will have a "spin-on" effect on the Chinese defense technology and industrial base.¹⁵

- **Nuclear Weapons:** China's nuclear weapons program is largely hidden within the PRC's nuclear energy and space programs. Anywhere from between 30 and 60 percent of the Chinese nuclear industry is weapons-related, and the PRC's nuclear arms industry employs an estimated 240,000 people.¹⁶ One Western nuclear expert estimates that the PLA probably spends three to five percent of its overall actual defense budget on its nuclear weapons program (including delivery systems).¹⁷
- **Procurement and "Special Weapons Projects":** At least some PLA procurement is "extrabudgetary," and therefore not included in official military expenditures.¹⁸ In September 1993, for example, it was revealed that the PLA had been given "special appropriations" on at least four occasions in recent years, totalling 18.7 billion yuan. At the same time, it was disclosed that due to supplementary funding, 1992 military expenditures were actually 42 billion yuan, rather than the official 37 billion yuan. In addition, the Central Committee of the Chinese Communist Party and the State Council agreed in July 1993 to spend an extra 8.5 billion yuan over the 1994-1996 period, for the procurement of new combat aircraft and the upgrading of submarines.¹⁹ Most major arms imports are also believed to be off-budget purchases;²⁰ during the 1980s, for instance, the PRC imported an average of \$400 million worth of arms every

¹⁵ It has been pointed out, for example, that experience in coproducing the MD-82 jetliner with the McDonnell Douglas Corporation has also helped the Chinese improve quality control for military aircraft production (interview with Dean Cheng, U.S. Congressional Office of Technology Assessment, April 22, 1994). In addition, through the China Association for Peaceful Use of Military Industrial Technology (CAPUMIT) and other institutions, China is aggressively courting foreign investment in its defense industrial conversion efforts; at a Hong Kong conference in July 1993, for example, more than 300 PLA-owned enterprises displayed their nonmilitary products and invited foreign companies to invest in over 300 prospective commercial joint ventures. Peter Copeland, "Military Leads Way in Profiting from China's Economic Boom," *Washington Times*, August 29, 1993.

¹⁶ Tai Ming Cheung, "Counting the Costs," *Far Eastern Economic Review*, March 16, 1989.

¹⁷ Interview with Robert Norris, Natural Resources Defense Council, May 9, 1994.

¹⁸ SIPRI Yearbook 1993, p. 387; Lilly and Lin, "Testimony," p. 4; "Balancing the Books."

¹⁹ "Jiang Zemin Enhances Political Standing of the Generals, Now Numbering Ten," *Cheng Ming* (Hong Kong), September 1, 1993, translated in *FBIS-CHI-93-171*, September 7, 1993, pp. 46-48.

²⁰ In recent years, for example, China has purchased Mi-17 helicopters, Su-27 fighter-bombers, Il-76 transport planes, T-72 tanks, and S-300 (SA-10) surface-to-air missiles from Russia, avionics kits from the United Kingdom, naval air defense systems from France, and AEW (airborne early warning), missile, and tank armor technology from Israel. Sutter and Kan, *China as a Security Concern in Asia*, p. 10; Richard A. Bitzinger, "Arms to Go: Chinese Arms Sales to the Third World," *International Security*, Fall 1992, pp. 101-106.

year, with Russia emerging as China's preeminent supplier.²¹ In 1991-92 alone, the Russians signed about \$2 billion worth of arms agreements with the PRC.²²

- **People's Armed Police and PLA Reserves:** Since the mid-1980s, the PLA has demobilized nearly 800,000 soldiers; many of these personnel, however, have simply been transferred into the paramilitary People's Armed Police (PAP), which now numbers up to 600,000 to 1 million troops.²³ The PAP is paid for out of the central government budget for "administrative expenses." In addition, the costs of PLA reserve forces are borne by provincial budgets.²⁴
- **Military Pensions:** According to the best available information, more than 5 million former PLA personnel or their dependents are receiving a pension (many of these were soldiers involuntarily demobilized from the armed forces in the 1980s, when the PLA was reduced from over 4 million soldiers to about 3 million today). The costs of these pensions — which could total anywhere from 5 to 10 billion yuan — are paid for by the Ministry of Civil Affairs.²⁵
- **Subsidies for Defense Industries:** China's military-industrial complex comprises about 1,000 large defense plants and 30,000 smaller factories, employing up to 5

²¹ As measured in constant 1991 dollars. See U.S. Arms Control and Disarmament Agency, *World Military Expenditures and Arms Transfers, 1991-1992* (Washington, DC: Government Printing Office, March 1994), p. 100.

²² Sutter and Kan, *China as a Security Concern in Asia*, p. 9.

²³ Tai Ming Cheung, "Decimated Ranks," *Far Eastern Economic Review*, February 27, 1992. Furthermore, it is likely that the PLA could shrink by an additional 250,000 to one million soldiers by the end of the 1990s, again with some of these troops being transferred into the PAP. See "Chinese Communist Decide to Merger Into Four Military Regions; Military Personnel Will Change," *Lien Ho Pao* (Taipei), translated in *FBIS-CHI-92-130*, July 7, 1992, p. 63; Susan V. Lawrence, "Still on the March," *U.S. News & World Report*, March 9, 1992.

²⁴ Harris, "Interpreting Trends in Chinese Defense Spending," p. 678; Yeung and Lam, "Defense Wins Huge Rise." One Western source argues that in mid-1993 the PAP and border protection forces were placed under PLA control, but it is uncertain whether subsequent defense budget increases might account for any additional personnel and O&M costs or whether these are still accounted for under off-budget funding. See Paul Godwin and John J. Schulz, "Arming the Dragon for the 21st Century: China's Defense Modernization Program," *Arms Control Today*, December 1993, p. 4.

²⁵ Harris, "Interpreting Trends in Chinese Defense Spending," p. 678. The figure of five to ten billion yuan is arrived at by multiplying the number of pensioners by a percentage of the average annual wage in China, which was 2,340 yuan in 1992 (*China Statistical Yearbook 1992*, p. 29). The low end of the scale would constitute an average military pension approximately one-half the going average annual wage, while the high end would mean a average pension roughly equal to the annual wage.

million workers.²⁶ Despite considerable progress in "bureaucratic entrepreneurialism" (i.e., forcing defense firms to pay their own way) and in diversifying into commercial operations (see below), many Chinese defense enterprises are still losing money. The central government, therefore, has been forced to prop up perhaps a third of all armaments factories, either through direct subsidies or through underwriting conversion efforts.²⁷ According to one Western estimate, subsidies to Chinese defense enterprises could total as much as 75 billion yuan.²⁸

In addition, the PLA has several other sources of *internally generated* revenue that do not appear to be included in official Chinese military budgets:

- **Agricultural Production on PLA-Owned Farms:** Many PLA units operate their own farms, which in turn are major suppliers of foodstuffs for the armed forces (The PLA, for example, is believed to be the largest pig farmer in China). Such agricultural production not only contributes to raising soldiers' living standards while acting as a "hidden subsidy" to the PLA, but some of it is also sold on the free market at a profit. One Western estimate put the annual market value of PLA-produced foodstuffs for 1989 at over \$1 billion.²⁹
- **Earnings from Overseas Arms Sales:** Much has been written about Chinese arms sales and the considerable revenues it has earned — much of which has gone directly to the PLA.³⁰ According to the U.S. Arms Control and Disarmament Agency (ACDA), the PRC exported an average of about \$1.5 billion worth of armaments each year during the 1980s.³¹ Altogether, China earned over \$12 billion in overseas arms

²⁶ John Frankenstein, *Understanding the Chinese Defense Industry: Structure and Trends*, presentation made to the Asia-Pacific Defense '94 Conference, Singapore, February 23-24, 1994; Robert Benjamin, "U.S. Targets Chinese Military Firms in Most-Favored Nation Dispute," *Baltimore Sun*, May 22, 1994.

²⁷ SIPRI Yearbook 1993, pp. 388-389; "Balancing the Books."

²⁸ Shambaugh, *Wealth in Search of Power*, p. 26.

²⁹ Harris, "Interpreting Trends in Chinese Defense Spending," p. 678; see also Arthur S. Ding, *Military Production and the Defense Budget in the PRC*, paper presented to the Fifth Staunton Hill Conference on the People's Liberation Army, Staunton Hill, VA, June 17-19, 1994, pp. 5-6; "Jiang Zemin Enhances Political Standing of the Generals," p. 48.

³⁰ See John W. Lewis, Hua Di, and Xue Litai, "Beijing's Defense Establishment: Solving the Arms Export Enigma," *International Security*, Spring 1991; Bitzinger, "Arms To Go."

³¹ As measured in constant 1991 dollars. ACDA, *World Military Expenditures and Arms Transfers, 1991-1992*, p. 100.

sales between 1985 and 1992.³² These figures are gross revenues, of course; actual profits would be much less.

- **Earnings from Nonmilitary-Oriented PLA Economic Activities:** Finally, the armed forces' growing civilian economic activities have brought billions of dollars into the PLA's coffers. Since the early 1980s, the PLA has emerged as a major commercial enterprise. Currently, an estimated 70 to 80 percent of military industrial output in the PRC has been shifted to nondefense production. PLA factories now manufacture everything from toys to telephones to textiles. The military builds commercial ships and nuclear power plants, and launches civilian satellites. Norinco, China's armor and artillery conglomerate, is the largest exporter of semiautomatic "sporting rifles" to America. China's military operates its own pharmaceutical business that reportedly earns \$1 billion a year. The PLA leases out military port facilities and hires out Air Force pilots to civilian airlines. The Army also owns and operates luxury hotels and discos. Altogether, it is estimated that gross PLA revenues from its nonmilitary economic activities could total as much as \$20 billion a year.³³

WESTERN ANALYSES OF CHINESE DEFENSE SPENDING

Given the obvious fact that official PLA budget figures do not fully account for all Chinese military activity, several Western analysts have attempted to come up with a figure that is more representative of actual military spending in the PRC. Because of the lack of reliable data and due to differences in counting rules, these efforts have yielded widely differing estimates of Chinese military expenditures (see Figure 2).

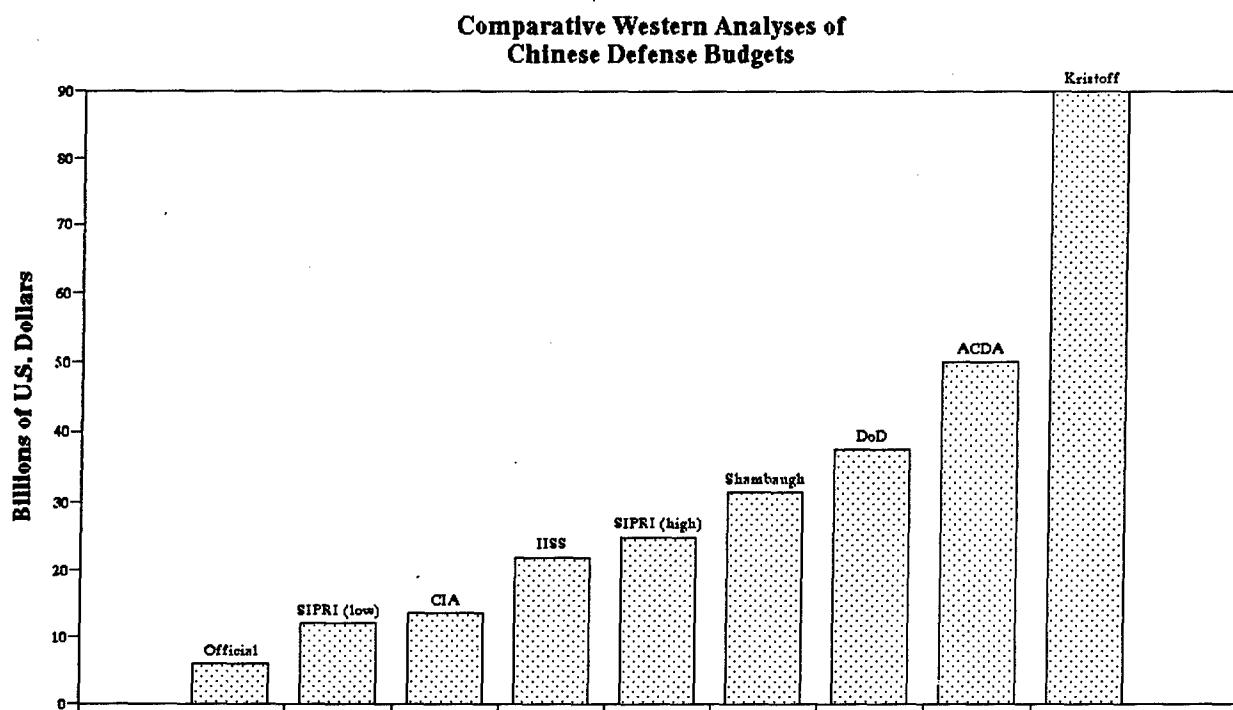
In one of the CIA's few publicly released statements on Chinese defense spending, it estimated the PLA's 1990 budget to be at least 57 billion yuan, or approximately \$12 billion at contemporary exchange rates. This figure was nearly double the official 1990 defense budget of 29 billion yuan — the CIA arguing that the PLA had received "an equivalent level of funds" in extrabudgetary revenues. The CIA estimate, therefore, raised Chinese defense expenditures to about 3.5 percent of GNP.³⁴

³² Richard F. Grimmett, *Conventional Arms Transfers to the Third World, 1985–1992* (Washington, DC: Congressional Research Service, July 19, 1993), p. 60.

³³ John Frankenstein, "The People's Republic of China: Arms Production, Industrial Strategy, and Problems of History," in Herbert Wulf, ed., *Arms Industry Limited* (New York: Oxford University Press, 1993), p. 297; Patrick E. Tyler, "China Military's Business Profits Being Put Back Into Business, Not Arms," *New York Times*, May 24, 1994; Kathy Chen, "Soldiers of Fortune: Chinese Army Fashions Major Role for Itself as a Business Empire," *Wall Street Journal*, May 24, 1994; Benjamin, "U.S. Targets Chinese Military Firms in Most-Favored-Nation Status;" Lilly and Lin, "Testimony," p. 3; Schmetzer, "China Approves More Benefits for its Army."

³⁴ Harris, "Interpreting Trends in Chinese Defense Spending," p. 677.

Figure 2



The World Military Expenditures Project of the Stockholm International Peace Research Institute (SIPRI) stated in 1992 that actual Chinese defense spending was anywhere from "two to four times higher" than official figures, given additional earnings from agricultural and commercial enterprises and from arms sales, and due to extrabudgetary expenditures for military R&D, pensions, the PAP, and defense industry conversion activities.³⁵ This would put real Chinese defense spending somewhere in the range of \$12 billion to \$25 billion. SIPRI, however, based much of its analysis on the aforementioned CIA study, with little independent budgetary analysis, and by the following year, SIPRI would only concede that the official Chinese defense budget was "a substantial underestimate."³⁶

David Shambaugh asserts that PLA budgets could total as much as \$31.5 billion (using current exchange rates). He derived this figure by adding to the official PLA budget estimated revenues from arms sales, earnings on PLA commercial and agricultural operations, extrabudgetary expenses for the PAP, reserves, and pensioners, and state subsidies for defense

³⁵ SIPRI *Yearbook* 1992, pp. 245-250.

³⁶ SIPRI *Yearbook* 1993, p. 387.

industries and/or defense conversion. Discounting for inflation and holdbacks of funds for future outlays, Shambaugh estimates that actual PLA revenues could be some 3.7 times official spending figures.³⁷

Other Western institutions have also attempted to estimate Chinese defense expenditures. The International Institute for Strategic Studies (IISS), in its annual *Military Balance*, put Chinese defense spending at around \$21.8 billion for 1992, or roughly three times the official figure.³⁸ In a 1993 news article, a Department of Defense official was quoted as saying that actual PLA expenditures were around \$30 billion to \$45 billion a year, at least five times the official budget.³⁹

In addition to determining the amount of hidden defense spending going on in China's military establishment, some analysts have attempted to measure the value of Chinese military expenditures in dollar equivalents more reflective of Western prices, by using a variety of purchasing power parity (PPP) techniques.⁴⁰ For example, since labor costs — a large part of most defense spending — are so low in China, these expenses should be translated into what it would comparably cost in a Western country.⁴¹ Using PPP ratios calculated by the World Bank, for instance, the U.S. Arms Control and Disarmament Agency estimated that the comparable Western value of Chinese military expenditures in 1991 was actually around \$51 billion, making the PRC the third largest defense spender in the world.⁴² Nicholas Kristof, using a ratio based on comparative Chinese and global averages for per capita GNP, argued that Chinese defense budgets could total as much as \$90 billion in Western purchasing power.⁴³

³⁷ Shambaugh, *Wealth in Search of Power*, pp. 32-33.

³⁸ IISS, *The Military Balance, 1993-1994* (London: Brassey's, 1993), p. 152.

³⁹ Barbara Opall, "U.S., Allies Fear Chinese Buildup," *Defense News*, April 26-May 2, 1993, pp. 1, 18.

⁴⁰ For a further discussion of purchasing power parity techniques as they are applied to the PRC, see Central Intelligence Agency, *The Chinese Economy in 1990 and 1991: Uncertain Recovery* (Washington, DC: CIA, July 1991), pp. 15-16; ACDA, *World Military Expenditures and Arms Transfers, 1987* (Washington, DC: Government Printing Office, March 1988), p. 146; ACDA, *World Military Expenditures and Arms Transfers, 1991-1992*, p. 152.

⁴¹ Triplett, "Inside China's Scary New Military-Industrial Complex."

⁴² ACDA, *World Military Expenditures and Arms Transfers, 1991-1992*, pp. 3, 58.

⁴³ Nicholas D. Kristof, "The Rise of China," *Foreign Affairs*, November/December 1993, pp. 65-67. Kristof arrived at this \$90 billion figure by first estimating that actual Chinese defense spending (i.e., including off-budget items) could be as much as three times the official PLA budget, or about \$18 billion. He then multiplied this by a factor of five, which is the difference between World Bank figures for Chinese per capita GNP and the global average, in order to reflect "equivalent purchasing power in the West."

It is difficult, however, to have a very high level of confidence in some of the above findings. With few exceptions, these analysts do not reveal *how* they came up with their final figures on Chinese military expenditures, or upon what kind of data they base their conclusions. In addition, the disparity of the findings, and in particular the broadness of the range of estimated Chinese military expenditures (anywhere from two to fifteen times the official PLA budget), makes it difficult to arrive at a consensual estimate for probable Chinese defense spending.

CHINESE DEFENSE SPENDING: TWO POSSIBLE APPROACHES

There is room, therefore, for additional efforts at attempting to decipher the PLA budget. This section offers two possible approaches, one that attempts to determine Chinese defense spending by calculating the likely costs of major "line items" in the defense budget, based on formulas used in other countries or on what one may reasonably assume the Chinese to be spending, and another that attempts to build on the official PLA budget by adding in extrabudgetary items.

First, one could attempt to extrapolate likely expenditures for major sections of the PLA budget, based on what we know about general defense budgeting processes in the West and/or on previous information about Chinese spending in certain categories:

- **Operations and Support:** Operations and support (O&S) costs comprise personnel (wages, benefits, food, and housing subsidies), training, operations and maintenance costs, and military construction. In the United States, O&S costs per soldier are typically three to four times the per capita GNP. Applying a similar standard to the PLA (based on a per capita GNP of approximately 3,000 yuan⁴⁴) would result in per soldier O&S costs of about 9,000 to 12,000 yuan. Total O&S costs for an approximately 4 million-man armed force (PLA regular forces plus the PAP): 36 billion to 48 billion yuan. Operations and Support expenditures for the PLA's 1.2 million-man reserve forces (figuring these expenses to be about one-fifth of those for full-time recruits) would add another 2 billion to 3 billion yuan to O&S budgets.
- **Procurement:** Determining PLA procurement costs is a difficult task since so little public information is available concerning quantities of weapons systems (e.g., tanks, combat aircraft, surface combatants) purchased by the PLA and their unit costs. Table 2 attempts to provide an "educated guess" of possible minimum/maximum PLA procurement and the likely per unit costs of Chinese military equipment. Chinese weapon systems are likely to be much cheaper than Western arms, both because of

⁴⁴ The World Bank estimated China's 1991 per capita GNP to be around 1,720 yuan. See World Bank, *World Development Report 1993* (New York: Oxford University Press, 1993), p. 238. Given double-digit economic growth and inflation rates for 1992-1994, current per capita GNP is calculated to be around 3,000 yuan.

lower labor costs and their inferior quality and capabilities. In addition, it must be kept in mind that major weapons buys constitute only part of all procurement spending (e.g., less than half of total procurement spending in the United States). Therefore, total procurement costs for domestically produced goods (including nuclear weapons) could range from 25 billion yuan to over 50 billion yuan.

- **Research and Development:** Military R&D in most countries with extensive defense technology and industrial bases generally consumes about 10 to 15 percent of all defense spending.⁴⁵ Applying the same ratio to the PLA budget would result in R&D spending of approximately 7 billion to 15 billion yuan. However, this figure could actually be much higher, particularly depending on how one defines defense-related R&D; given the level of technological and industrial development in the PRC, almost any kind of advanced technology activity (such as in telecommunications, electronics, or aerospace) has potential military applications. David Shambaugh, for instance, estimates that the PLA could be spending as much as \$5 billion a year on military-related R&D.⁴⁶
- **Arms Imports and Other Extrabudgetary Expenses:** In recent years, PLA arms imports have been running an average of \$500 million to \$1 billion (4.4 billion to 8.7 billion yuan) annually. In addition, the annual costs of providing for 3,000 Russian advisors could be as much as \$75 million to \$100 million (600 million to 1.2 billion yuan at current exchange rates). Military pensions could total anywhere from 5 to 10 billion yuan, while budgetary offsets from PLA agricultural production and local unit commercial operations could generate an additional 8 to 16 billion yuan. Total: 18 billion to 36 billion yuan.

By totalling these categories, we arrive at a range of possible PLA spending of between 88 billion and 152 billion yuan, or an average of approximately 120 billion yuan. Still missing from this budget equation are such items as subsidies to defense industries or the costs of underwriting defense conversion; also absent are any profits derived from nonmilitary PLA economic activities. Nevertheless, even a 120 billion yuan PLA budget is more than twice official 1994 spending levels.

⁴⁵ The United States, for example, devotes about 14 percent of its defense budget to R&D, while France spends about 12 percent, and the United Kingdom 11 percent. The former Soviet Union allocated about 20 percent of its military expenditures to R&D. Germany, meanwhile spends about 6 of its defense budget on military R&D, while Japan's military R&D budget comprises about 2.5 percent of all defense spending. Steven Kosiak, *Analysis of the Fiscal Year 1995 Defense Budget Request* (Washington, DC: Defense Budget Project, February 1994), Table 6; SIPRI Yearbook 1992, p. 215; and data provided by the Keidanren Defense Production Committee.

⁴⁶ Shambaugh, *Wealth in Search of Power*, p. 32. The *China Statistical Yearbook 1992* revealed that 9.3 billion yuan was allocated in 1998 for "R&D Spending for Scientific Purposes." *China Statistical Yearbook 1992* (Beijing: China Statistical Information Center, 1992), p. 197.

On the other hand, it is unclear how much of this money is actually used to underwrite PLA military operations, particularly force modernization. One Western source argues that while military-run enterprises generated perhaps 30 billion yuan (\$3.4 billion) in profits in 1992, only about 6 billion yuan was returned to central military authorities.⁴⁷ In addition, most of the profits from commercial ventures are apparently being reinvested in additional nonmilitary production and operations or else are being siphoned off through corruption.⁴⁸

Another possible approach to determining actual PLA spending would be to assume that the official PLA budget (52 billion yuan in 1994) accounts for all personnel and O&M expenses (and some partial procurement costs), and then add in all the extrabudgetary items, such as R&D, pensions, arms imports, etc. This would result in an overall defense budget of approximately 92 billion to 143 billion yuan.⁴⁹ Thus, an estimate of actual PLA military expenditures of 120 billion yuan — say, 3 percent to 3.5 percent of GNP — is probably not unreasonable.

⁴⁷ "Balancing the Books." In response, the Central Military Commissions has recently banned military units below the corps level from operating their own commercial enterprises and decreed that any such businesses must be turned over to civilian authorities; so far, however, this effort has been reported to be only partly successful. Schnetzer, "China Approves More Benefits For Its Army;" Tyler, "China Military's Business Profits Being Put Back Into Business, Not Arms"; Shambaugh, *Wealth in Search of Power*, p. 15.

⁴⁸ Ding, *Military Production and the Defense Budget in the PRC*, pp. 21-22; Shambaugh, *Wealth in Search of Power*, pp. 18-19; Tyler, "China Military's Business Profits Being Put Back Into Business, Not Arms."

⁴⁹ The low-end estimate assumes 52 billion yuan for personnel, O&M, and partial procurement, 2 billion yuan for the reserves, 13 billion yuan for the remainder of procurement, 7 billion yuan for R&D, and 18 billion for other extrabudgetary items (arms imports, pensions, foreign advisers, and agricultural production offsets). The high estimate adds to the baseline of 52 billion yuan: 3 billion yuan for reserves, 37 billion yuan for procurement, 15 billion yuan for R&D, and 36 billion yuan for extrabudgetary expenses.

Table II
NOTIONAL PLA PROCUREMENT SPENDING
(in millions of yuan)

Item	LOW		HIGH	
	Quantity	Costs	Quantity	Costs
MBTs	100	43.5	300	1305.0
Other Armored Vehicles	50	13.1	150	195.8
Artillery Tubes	100	87.0	300	261.0
Combat Aircraft	75	1957.5	180	4698.0
Other Aircraft	25	2175.0	75	6525.0
Missiles	1000	870.0	3000	2610.0
Large Naval Vessels	5	4350.0	10	8700.0
Other Naval Vessels	10	2175.0	20	4350.0
Other Procurement		13300.0		22400.0
TOTALS*:		25000.0		50000.0

**numbers may not add up due to rounding*

Costing Formulas, per unit:

MBT: \$500,000 (4.5 million yuan)

Other Armored Vehicles: \$150,000 (1.3 million yuan)

Artillery Tubes: \$100,000 (870,000 yuan)

Combat Aircraft: \$3 million (87 million yuan)

Other Aircraft: \$10 million (870,000 yuan)

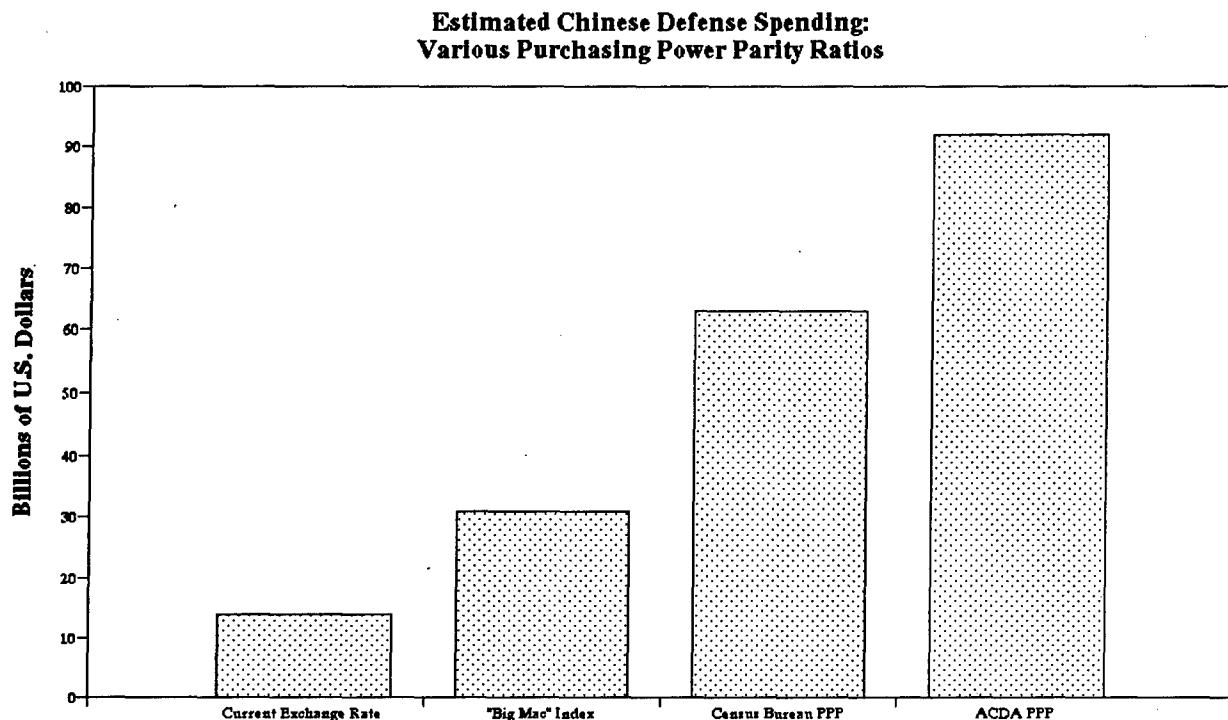
Large Naval Vessels: \$100 million (870 million yuan)

Other Naval Vessels: \$25 million (218 million yuan)

One hundred twenty billion yuan at the current exchange rate is nearly \$14 billion. However, one might also wish to express this figure in comparable U.S. prices by using a purchasing power parity calculation. Figure 3 shows this 120 billion yuan amount according to three PPP ratios for China: one developed by the U.S. Census Bureau, another used by ACDA, and a third based, for the purposes of comparison, on the *Economist's "Big Mac"* index.⁵⁰ Translated into U.S. prices, therefore, PLA military expenditures range between \$31 billion to \$92 billion. This means that the purchasing power of real Chinese defense spending could range anywhere from five to 15 times the official figure of \$6 billion.

⁵⁰ CIA, *The Chinese Economy in 1990 and 1991*, p. 16; ACDA, *World Military Expenditures and Arms Transfers, 1991-1992*, p. 152; *Economist*, "Big MacCurrencies," April 9, 1994. The "Big Mac" Index compares the average price of a Big Mac hamburger (identical in size and quality in every country), using the U.S. price (\$2.30) as the benchmark; since a Big Mac in China costs about 9 yuan (\$1.03) in local currency, this gives a PPP of 3.91 yuan to the dollar.

Figure 3



CAVEATS AND CONCLUSIONS

There are, of course, a number of significant qualifiers to the analysis in the previous section. In the first place, these budget estimates do not tell us much about specific weapons purchases or R&D programs, both of which are key to understanding PLA modernization and force projection plans and capabilities. In fact, the estimates here for procurement, R&D, and military pensions are based on quantitative assumptions that can and do vary widely. Secondly, the purchasing power parity techniques used to estimate Chinese GNP also differ greatly. Chinese PPPs are notoriously unreliable and subjective, and their value for the purpose of analysis could be limited; many PPPs do not account for the inferior quality of Chinese products and services relative to the West, for example, and so may overvalue Chinese expenditures. Finally, these budget figures do not discount for inflation, which could greatly sap the purchasing power of PLA expenditures.

Nevertheless, almost all independent analyses — including that found in this paper — argue that official PLA budget figures undercount actual Chinese military expenditures by a factor of at least two. This means a defense burden of at least 3.5 percent of GNP. And if the recent past is any guide, Chinese defense spending should continue to rise. If the Chinese

economy continues to expand as rapidly as it did during the 1980s — around 13 percent a year, on average — the country could certainly afford an increasing defense burden.⁵¹ In addition, if military expenditures were pegged to the national economy (as they generally are in Japan⁵²), then sizable GNP growth could mean a significant rise in the Chinese defense budget; for instance, should PLA budgets rise in accordance with projected real growth in the country's economy (nine percent annually), then Chinese military expenditures could top 200 billion yuan by 2000. PRC defense spending would likely have to be expanded greatly, if the PLA is to be successful in overhauling and modernizing its antiquated force structure.

However, simply proving that the Chinese are grossly underrepresenting their defense expenditures is insufficient. Even if Chinese defense expenditures are 3.5 percent of the country's GNP, for example, this is not excessive compared to most other large powers; moreover, China's defense burden appears to have declined significantly since the early 1980s, when it stood at around eight percent of GNP.⁵³

In addition, how much is being spent on defense must be contrasted with what the Chinese are getting for their expenditures. For one thing, the bulk of the Chinese defense budget still goes to meeting personnel costs (wages, benefits, pensions, etc.), i.e., keeping the PLA happy and well-fed. The armed forces must increasingly compete with the higher wages obtainable in the growing free market sector. And while permitting the PLA to engage in commercial operations may have helped raise soldiers' living standards, it also has been detrimental to defense readiness and training, by distracting the PLA from its primary military interests.⁵⁴ A recent article in *Jane's Defence Weekly* points out that some PLA units are "increasingly focused on money-making activities at the expense of their operations readiness."⁵⁵

It is also important to note that China's military-industrial complex appears to be shrinking. Given the fact that most so-called "defense sector" output is actually nonmilitary, it is difficult to see how state subsidies for these industries can be considered defense-related. In fact, some defense enterprises are hardly doing any military production at all. It was recently reported, for example, that at the Chengdu Aircraft Company (the main assembly line for the J-7 fighter, the PLA Air Force's current workhorse), hardly a dozen or more combat aircraft a year are being produced; instead, most of the company's current manufacturing is

⁵¹ ACDA, *World Military Expenditures and Arms Transfers, 1991-1992*, p. 58.

⁵² Japanese defense expenditures have long been unofficially pegged to about one percent of the country's GNP.

⁵³ ACDA, *World Military Expenditures and Arms Transfers, 1991-1992*, p. 58.

⁵⁴ Tyler, "China Military's Business Profits Being Put Back into Business, Not Arms"; Chen, "Soldiers of Fortune."

⁵⁵ "Balancing the Books."

centered around motorcycles or nose sections for the McDonnell Douglas MD-80 commercial airliner.⁵⁶ This also means that indigenous PLA procurement could also be much lower than most Western analysts have estimated.

Most of all, and despite a certain amount of progress, PLA force modernization — absolutely critical if China is to become even a major regional power — has been slow, erratic and uncertain. While there may be considerable talk about the Chinese pursuing power projection or preparing for "limited, high-tech war," the fact remains that the PLA is still a very backwards force.⁵⁷ According to the best available open sources, the PLA force structure is still overwhelmingly dependent upon obsolescent Soviet designs dating from the 1950s (T-54 tanks, MiG-19 fighters, Romeo-class submarines, SS-N-2 Styx antishipping missiles, etc.). Furthermore, PLA command and control is considered to be weak, the ground forces lack sufficient numbers of transport helicopters, and live-fire exercises and other types of training have long been limited and infrequent.⁵⁸

This backwardness is exacerbated by serious deficiencies and weaknesses in China's domestic R&D structure. The PRC's military R&D base is encumbered by a host of bureaucratic hindrances, including a decentralized, redundant system of competing ministries and industries.⁵⁹ One Western analyst points out that Chinese industries maintain "incredibly poor economies of scale," and that the electronics R&D base in particular possesses "extreme redundancies."⁶⁰ In addition, continued funding constraints have forced the PLA "to concentrate on building a foundation for weapons development rather than weapons production," so that while the Chinese may be able to "design and build some state-of-the-art prototypes . . . defense industries cannot afford to make the facilities improvements that will make it possible to produce the prototypes in adequate quantities."⁶¹ These deficiencies are glaringly evident, for example, in the purported failure of the PLA to further develop its submarine-based, ballistic-missile-firing technologies or to mass-produce an advanced

⁵⁶ Tyler, "China Military's Business Profits Being Put Back into Business, Not Arms."

⁵⁷ Sutter and Kan, *China as a Security Concern in Asia*, pp. 7-15; Larry M. Wortzel, "China Pursues Traditional Great-Power Status," *Orbis*, Spring 1994; Shulong Chu, "The PRC Girds for Limited, High-Tech War," *Orbis*, Spring 1994.

⁵⁸ IISS, *The Military Balance 1993-1994*, pp. 152-155; Sutter and Kan, *China as a Security Concern in Asia*, pp. 15-18.

⁵⁹ Bitzinger, "Arms To Go," pp. 97-101.

⁶⁰ "China: Land of Defense Conversion?" *Defense Conversion*, April 11, 1994.

⁶¹ Robert J. Skebo, Gregory K.S. Man, and George H. Stevens, "Chinese Military Capabilities: Problems and Prospects," in *Chinese Economic Dilemmas in the 1990s*, p. 665.

fighter aircraft. In many regards, therefore, China's military buildup has been more symbolic than substantive.⁶²

One should be careful about making too much of recent Chinese arms imports, either. For example, while the purchase of two dozen Su-27 top-of-the-line fighters and of 50 T-72 tanks from Russia is important to note, it must be kept in mind that the PLA needs to replace or heavily upgrade approximately 5,000 MiG-19 and MiG-21 fighters and 8,000 tanks. Replacing only half of its current force structure with modern foreign equipment would still be a daunting task; China almost certainly lacks the financial resources necessary to buy foreign major weapon systems "off-the-shelf" or even to be able to license-produce them in sufficient quantities. For its part, Western military-industrial assistance has been sporadic, only partially useful, and, since the Tienanmen Square massacre, practically nonexistent.⁶³ In all, there could be severe limits on the advanced military systems or technologies that foreigners may be willing to transfer to China or that China may be able to absorb in the near-term. On the whole, therefore, the technological modernization of the PLA has not been very successful across-the-board, and the Chinese armed forces could remain inferior in relation to its potential adversaries for some time to come.⁶⁴

This is not to say that there are not strong intentions on the part of the PRC to modernize the PLA or that the Chinese have not enjoyed some impressive technological successes in certain weapons niches. For instance, with approximately four million men under arms (the PLA plus the PAP), China still maintains the largest armed forces in the world. In addition, Chinese efforts over the past five or ten years at building up their force projection capabilities, even if embryonic and often fitful, are certainly ambitious. In the past decade or so, the PLA has re-established its Naval Infantry (marines) and created a rapid-reaction force (the so-called "Fist Troops"); both of these forces are reportedly kept at a high level of training and readiness. The PLA Navy has grown considerably, and new classes of frigates and destroyers — many upgraded with Western equipment and outfitted with modern antishipping missiles and helicopters — have been added to the Chinese fleet; the Chinese also have plans to eventually procure at least one aircraft carrier. Accordingly, PLA power projection forces have reportedly increased their training and operations, with increased sailing days and expanded military exercises. Air-to-air refueling and airborne early

⁶² Skebo, Man, and Stevens, "Chinese Military Capabilities," p. 674.

⁶³ Bitzinger, "Arms To Go," pp. 101-105; Sutter and Kan, *China as a Security Concern in Asia*, pp. 16-17.

⁶⁴ Throughout the 1980s, most East Asian countries have been increasing their military spending at a rate of at least four to five percent a year and have also been incorporating increasingly sophisticated weapon systems in their armed forces. Both Taiwan and Korea, for example, are each buying hundreds of modern fighter aircraft (e.g., F-16s, Mirage-2000s and the Taiwanese Indigenous Defensive Fighter), while Japanese are upgrading their power projection capabilities with Aegis-equipped destroyers, new submarines, air-refueling tankers, and AWACS early warning aircraft. In fact, combined Japanese and U.S. military might in the region will likely always outpace that of China.

warning (AEW) are also areas where China's "selective modernization" is showing relative progress.⁶⁵

In addition, China's military-industrial complex can boast some very important "pockets of excellence."⁶⁶ Although inferior in certain regards to Western standards, China has succeeded in developing thermonuclear weapons and in creating a credible nuclear triad (ICBMs, SLBMs and bombers); the Chinese have even been able to develop a MIRVed (multiple independently targeted reentry vehicles) warhead capability. The PRC missile and space program is also impressive, as evidenced by China's recent emergence as a low-cost space launch provider and by the export successes of its surface-to-surface and antiship missiles.⁶⁷

Finally, certain types of foreign assistance could significantly facilitate Chinese efforts to modernize their military-industrial complex. The presence of a large number of Russian military-technical advisors and the extensive Israeli assistance to the PLA are both considerable causes for concern. So, too, is the willingness of Western commercial interests to help develop China's overall industrial infrastructure — investments which could have important "spin-on" benefits for the PLA.⁶⁸ Over the long run, these foreign inputs into China's technology and industrial base could greatly aid in the modernization of the PLA.

As with Chinese military expenditures, PLA offensive capabilities may be much more than is officially admitted; this concealment of actual PLA capabilities may even be intentional.⁶⁹ The PRC, backed by its sizable armed forces, nuclear weapons, and improving force projection capabilities (along with its overall dynamic economic growth), is increasingly a political/military force to be reckoned with. And as strategic capabilities expand, so might strategic intentions.

⁶⁵ Chong-Pin Lin, *Chinese Military Modernization: Perceptions, Progress, and Prospects*, manuscript, April 1994, pp. 16-21; Wortzel, "China Pursues Traditional Great-Power Status," pp. 163-164, 169; Yihong Zhang, "China Heads Toward Blue Waters," *International Defense Review*, November 1993.

⁶⁶ Lin, *Chinese Military Modernization*, p. 11.

⁶⁷ Lin, *Chinese Military Modernization*, pp. 11-16, 22-24; Ding, *Military Production and the Defense Budget in the PRC*, pp. 16-18.

⁶⁸ U.S. high-technology companies that either are currently investing or plan to invest in China include Motorola (semiconductors), AT&T (telecommunications), Chrysler (automotives), IBM (technology networks), Apple (computers), and Boeing and McDonnell Douglas (aerospace). All of these are "dual-use" industries whose technologies can potentially be spun off onto China's military-industrial complex. "China's Gates Swing Open," *Business Week*, June 13, 1994.

⁶⁹ See Lin, *Chinese Military Modernization*, pp. 32-33.

In conclusion, it is clearly evident that official Chinese defense budgets grossly underrepresent actual PLA military expenditures. In fact, actual Chinese defense spending is at least two to three times greater than official estimates — and perhaps even as high as 15 times, depending on one's criteria and methodology. At the same time, it is obvious that there remains much more work to be done in the area of estimating and analyzing Chinese military expenditures. Current analyses of Chinese defense budgets can tell us much but they still have their limitations. In particular, having more precise estimations of the budgets for discrete Chinese procurement and R&D programs could be instrumental in assessing PLA strategic intentions and potential military capabilities; that, however, would require having access to detailed data that the Chinese do not yet provide. Until then, it will continue to be necessary to fall back on other types of analysis — as discussed in this paper — where the findings are likely to be more impressionistic and less quantitative, and therefore more debatable.

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